

DETAILED ACTION

Response to Amendment

1. Applicant's amendment was received on 7/22/09 and has been entered and made of record. Currently, claims 1-7 and 19-20 are pending.

Response to Arguments

2. Applicant's arguments with respect to claims 1, 19, and 20 have been considered but are moot in view of the current amendment to the claims and therefore a new ground(s) of rejection will be made.

Claim Rejections - 35 USC § 103

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

4. Claims 1-7 and 19-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shope et al. (US 5,047,955) in view of Aikawa et al. (US 6,671,066) as cited in the IDS dated 11/26/08 and Chang et al. (US 7,254,668).

Regarding claims 1, 19, and 20, Shope discloses a data processing apparatus, method, and data processing program stored on a computer-readable storage medium,

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for transmitting a document formed by a plurality of logical pages to a printing device, comprising: spooling means for spooling the plurality of logical pages for each of a plurality of sets (see column 2 lines 27-28), determination means for determining drawing information from the first logical page to a logical page just previous to the one logical page retrieved by said retrieval means to be drawing information for one of the plurality of sets (see column 3 lines 1-21, reference states that microcontroller **36** and LCU **38** are electronic collation means for presenting the stored image data for printing in the proper sequence, as often as is needed to produce the desired number of collated document sets), generation means for generating a print command to be transmitted to the printing device based on the drawing information for the one set determined by said determination means (see column 2 line 64-column 3 line 8, microcontroller **34** is responsible for initiating transfers from the RIP **10** and controls communication with the LCU **38** of the marking engine), and transmission means for transmitting the print command generated by said generation means to the printing device (see column 3 lines 1-21, RIP **10** sends image data to the job image buffer, JIB **14**, which in turn sends the processed image data to the print head **30**).

Shope does not disclose expressly deriving means for deriving a number of logical pages from said spooling means, wherein the derived number of logical pages is fewer than an entirety of the spooled logical pages, and wherein the derived number of logical pages corresponds to numerical factors of a total number of the logical pages spooled by said spooling means, retrieval means for retrieving, from among the derived

number of logical pages derived by said deriving means, one logical page identical in drawing information to a first logical page.

Aikawa discloses retrieval means for retrieving, from among the derived number of logical pages derived by said deriving means, one logical page identical in drawing information to a first logical page (see column 13 line 38-column 14 line 38, a first page is compared to a second and later pages to determine identical pages).

Chang discloses deriving means for deriving a number of logical pages, wherein the derived number of logical pages is fewer than an entirety of the spooled logical pages, and wherein the derived number of logical pages corresponds to numerical factors of a total number of the logical pages (see column 10 lines 31-62 and column 11 line 59-column 12 line 11, logical pages are grouped into a plurality of pages based on the physical page and the logical groups are typically a power of two).

KSR analysis – Applying a Known Technique to a Known Device (Method, or Product) Ready for Improvement to Yield Predictable Results

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to apply the technique of comparing drawing information of logical pages of a document, as described by Aikawa utilizing the logical page groupings described by Chang, with the collation system set forth in Shope. Shope discloses electronic collation means for presenting the stored image data for printing in the proper sequence, as often as is needed to produce the desired number of collated document sets (see column 3 lines 9-21). Collation is known as gathering information and placing it in order. Shope further states that internal pointers identifying the beginning and

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ending addresses for each image are stored (see column 3 lines 5-7). Aikawa discloses comparing a first page with second and later pages to determine identical pages and thereby determine the number of sets of print data to be output and also calculates the total number of sheets needed for printing based on the page information, such as duplex, collate and n-up, and the number of copies to be output. Chang discloses grouping logical pages into blocks based on the number of logical pages that make up a physical page. Thus, taking all of the above teachings into consideration, it would have been obvious to utilize the logical page groupings for a comparison technique of the logical pages, based on teachings provided by Chang and Aikawa and knowledge possessed by one of ordinary skill in the art, to determine where each set of the plurality of logical pages begins and ends to provide proper output of collated sets of documents.

Therefore, it would have been obvious to combine Chang and Aikawa with Shope to obtain the invention as specified in claims 1, 19, and 20.

Regarding claim 2, Aikawa further discloses designation means for designating a printing mode including said designation means includes a double-sided printing mode for printing drawing information on both sides of one print sheet, and a N-up printing mode for outputting a plurality of logical pages on a face of one print sheet, wherein said retrieval means retrieves the one logical page in response to designation of the printing mode (see Fig. 5, column 4 lines 55-59, and column 7 lines 34-41).

Regarding claim 3, Aikawa further discloses wherein said retrieval means retrieves the one logical page based on data sizes of the one logical page and the first

logical page (see column 13 lines 38-50, compares bits of pages to determine identical or unidentical pages).

Regarding claim 4, Aikawa further discloses wherein said retrieval means retrieves the one logical page by performing a sampling process on the one logical page and the first logical page (see column 13 lines 38-50, reference states that attributes of a document are used during comparison to determine identical or unidentical pages, thereby performing a sampling process).

Regarding claim 5, Shope, Aikawa, and Chang do not disclose expressly wherein said retrieval means retrieves the one logical page by comparing all spool codes for the first logical page with all spool codes for the remaining logical pages.

However, Aikawa discloses comparing attributes, such as code breaks that represent the break between print data sets, to determine identical pages (see column 6 line 45-column 7 line 29).

It would have been obvious to one of ordinary skill in the art to compare spool codes, as this is an attribute of a logical page that is part of a document, and because it is well known in the art to compare images or files using a unique feature, such as a spool code.

Regarding claim 6, Aikawa further discloses wherein if the printing device cannot store the print command for the plurality of logical pages for each set, said generation means generates a print command indicating the number of the sets and a print command for printing the drawing information for the one set determined by said determination means (see column 13 line 63-column 14 line 38 and column 19 lines 37-

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44, reference states that sets of print data can be divided prior to be transmitted to the printer and each set would then act as one print job, thereby decreasing the amount of storage needed at the printer to execute the print job as a whole).

Further, Shope discloses compressing image data to increase the effective storage capacity of the storage means (see column 3 lines 1-8 and 22-27), thereby acknowledging the need to have enough storage capacity to be able to successfully store all the needed pages of a document to allow for a plurality of collated sets to be printed without re-rasterization.

It would have been obvious to one of ordinary skill in the art that if a storage capacity has been reached because the plurality of logical pages that make up a document is larger than the storage capacity, that in turn only one set, which is one document, is all that can be printed as each page will be spooled and sent to the marking engine for output onto a printing medium and then the logical page is deleted from the spooler and storage capacity is freed up for another logical page, and this process will repeat until the entire set/document is printed. All of this is the alternative to having enough storage capacity to execute the invention of Shope successfully and therefore was contemplated by Shope when creating the disclosed system.

Regarding claim 7, Shope further discloses wherein if the printing device can store the print command for the plurality of logical pages for each set, said spooling means stores drawing information for each logical page, and said transmission means transmits the print command generated by said generation means until said retrieval means retrieves the one logical page to the printing device, and thereafter if the

document is determined to be a collate document based on the logical pages subsequent to the retrieved one logical page, said transmission means transmits a print command indicating the number of the sets (see column 2 lines 27-37 and 46-63 and column 3 lines 1-21, reference shows that print jobs are spooled one page at a time and stored in a multi-page image buffer **14** until the microcontroller **36** and the LCU **38**, which makes up the collation means, gather the stored image data and place the image data in the proper sequence for printing).

Conclusion

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mark R. Milia whose telephone number is (571)272-7408. The examiner can normally be reached M-F 8:00am-4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Moore can be reached at (571) 272-7437. The fax number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Mark R. Milia
Examiner
Art Unit 2625

/Mark R. Milia/
Examiner, Art Unit 2625

/David K Moore/
Supervisory Patent Examiner, Art Unit 2625